

FIG 1

FIG. 2

Block diagram of a carrier tracking loop system. The system includes a carrier tracking loop (427) that provides signals  $e^{-j\hat{\theta}_k}$  (48) and  $e^{+j\hat{\theta}_k}$  (50) to multipliers (49) and (55). The input signal  $Y_r$  (40) passes through a forward filter  $A(z)$  (54A) to a summing junction (44). The output of the summing junction ( $y$ ) is multiplied by  $e^{-j\hat{\theta}_k}$  (48) at multiplier (49). The output of multiplier (49) passes through a decision device (52) to multiplier (55), which is also multiplied by  $e^{+j\hat{\theta}_k}$  (50). The output of multiplier (55) is split into path 1 and path 2 (53). Path 1 goes through a feedback filter  $B(z)$  (56) and back to the summing junction (44). Path 2 is the system output. Handwritten labels 54B and 54C are also present.

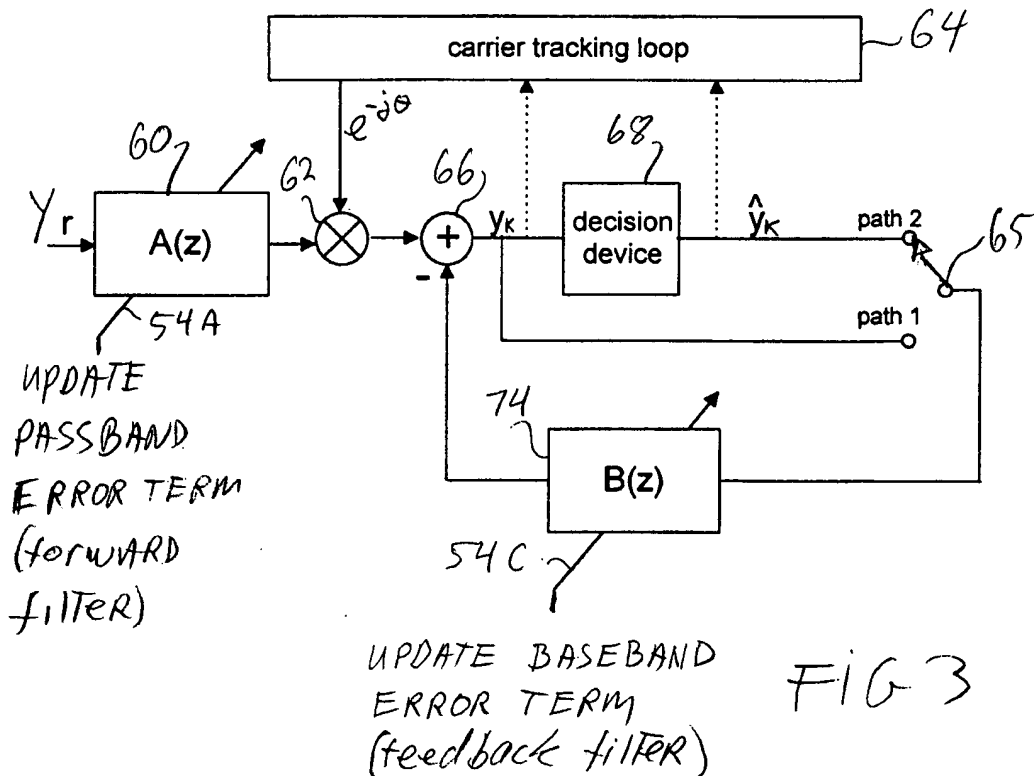


FIG. 5A

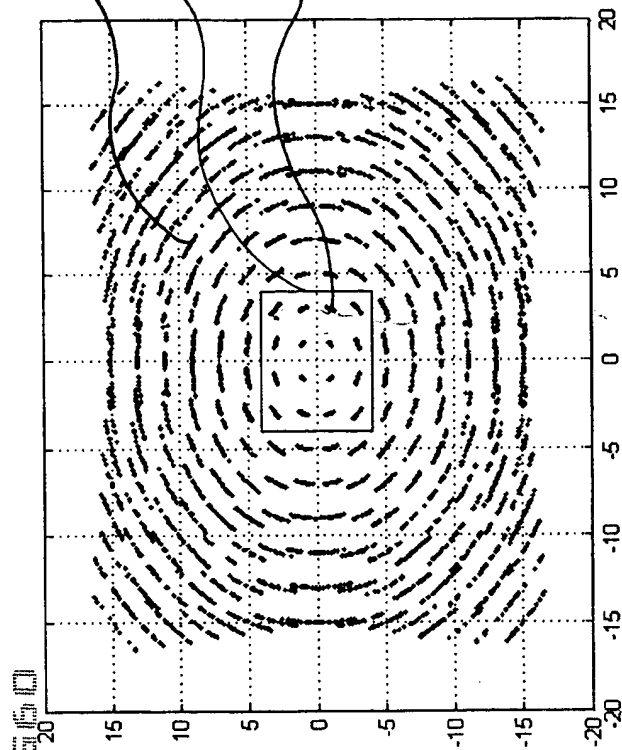
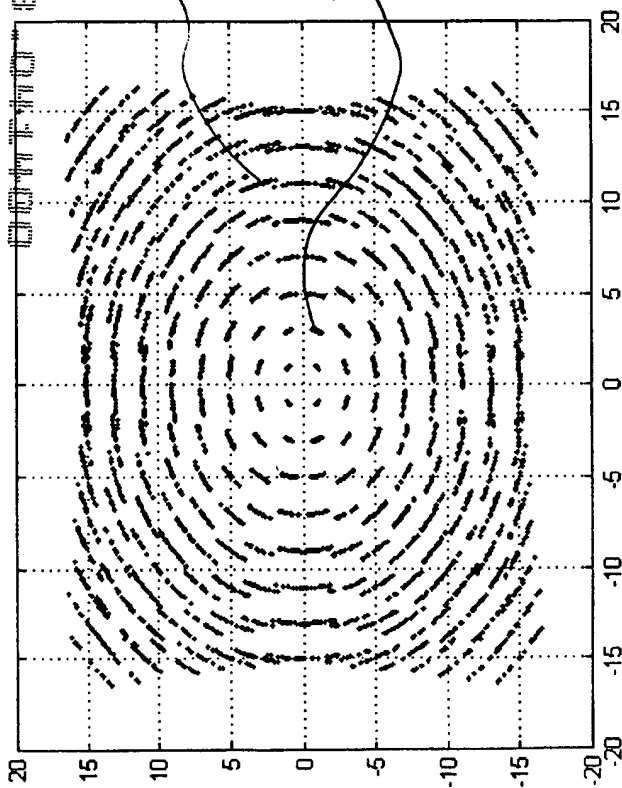


FIG. 5B

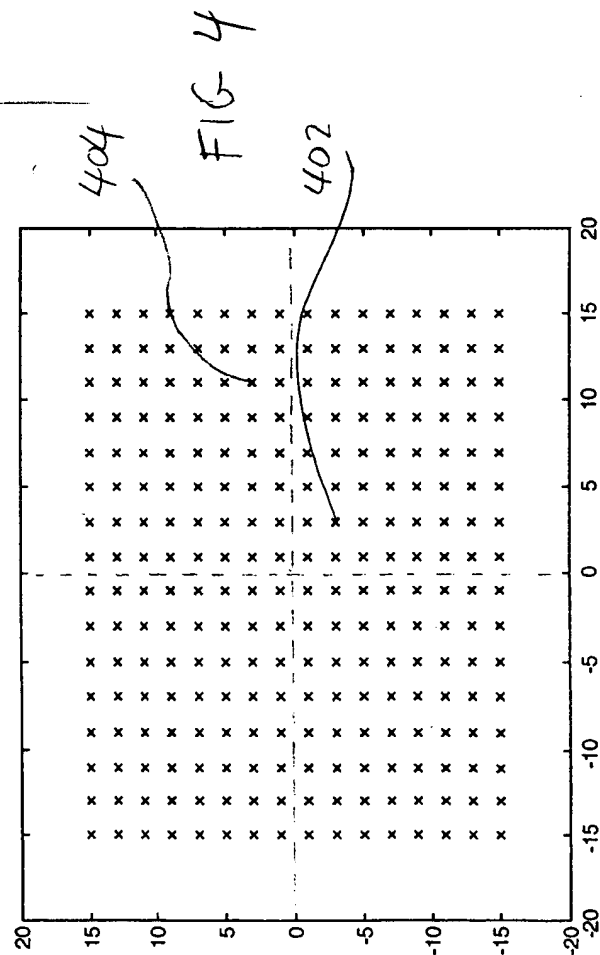


FIG. 4



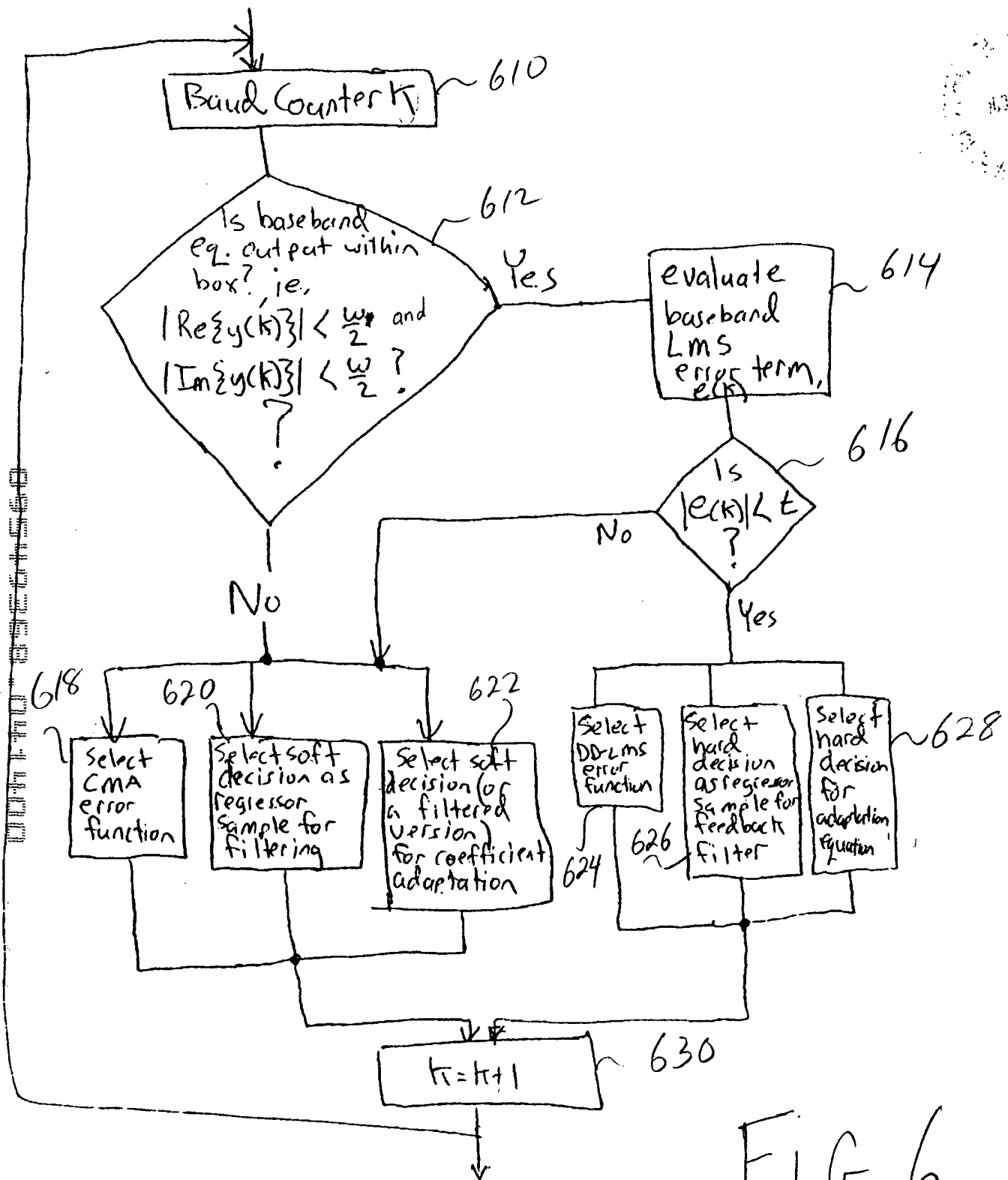
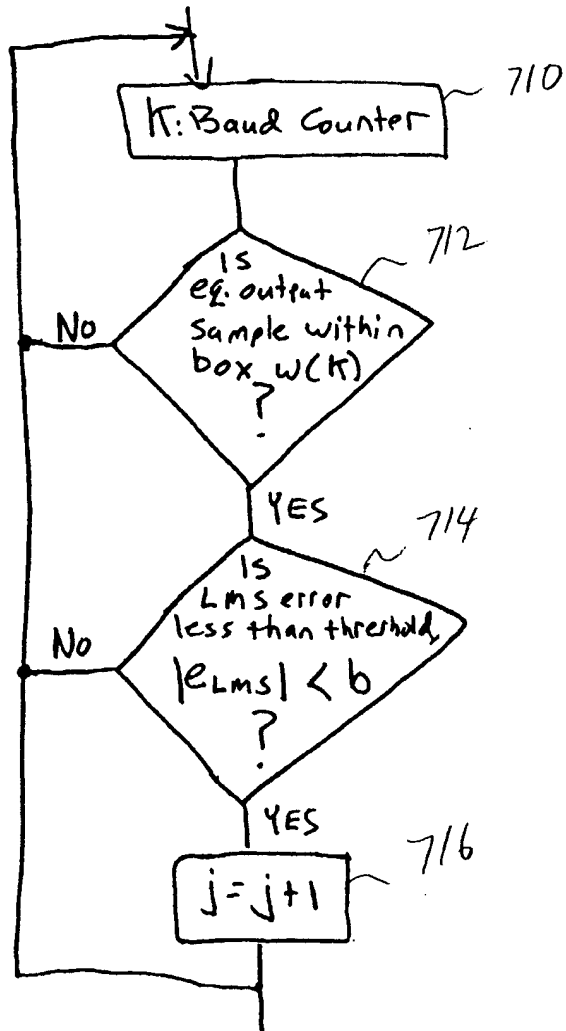


FIG 6

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Counter  $j$  calculation

Fig 6-7

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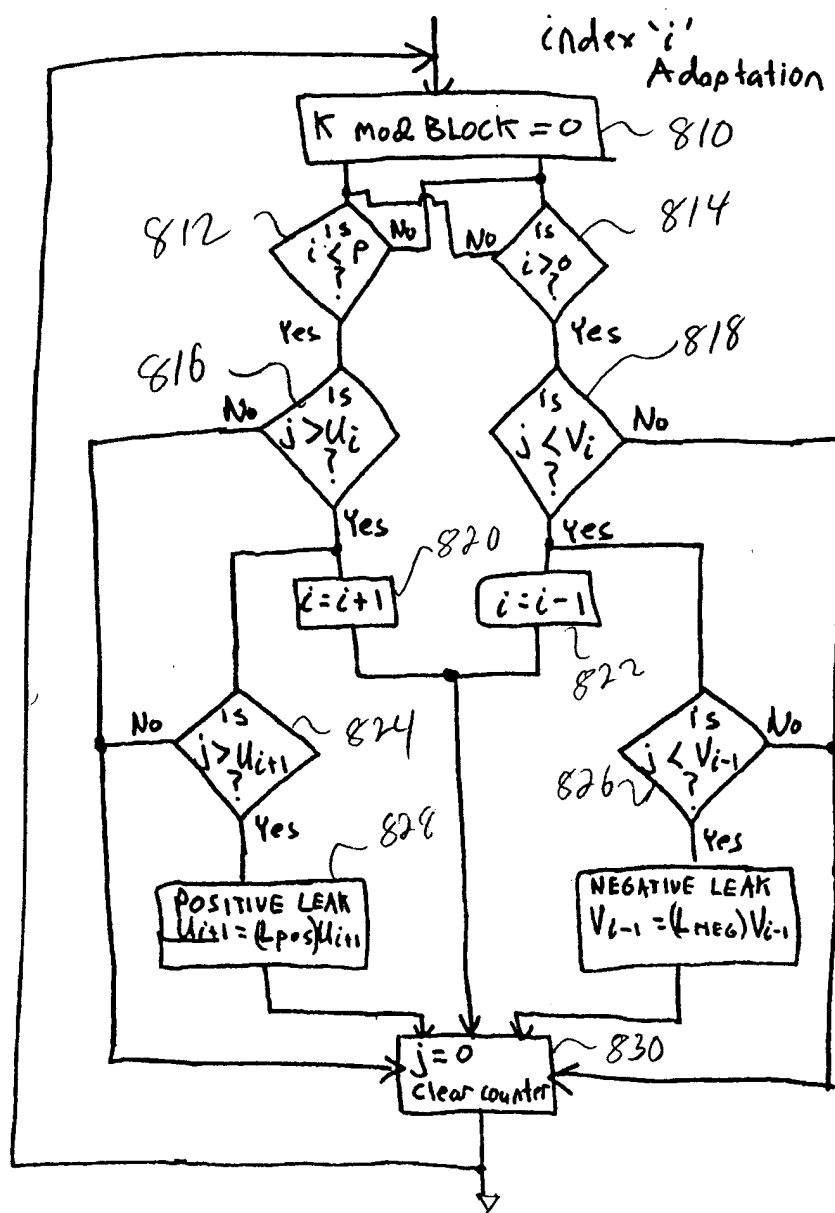


FIG 8

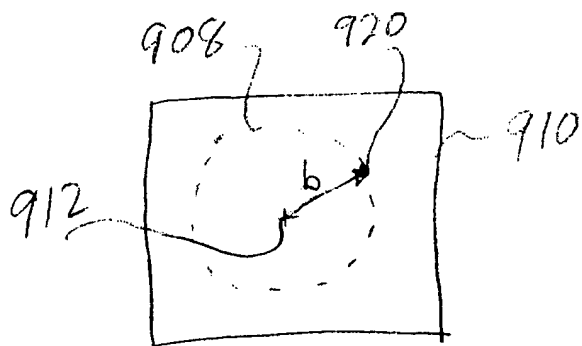


Fig 9A

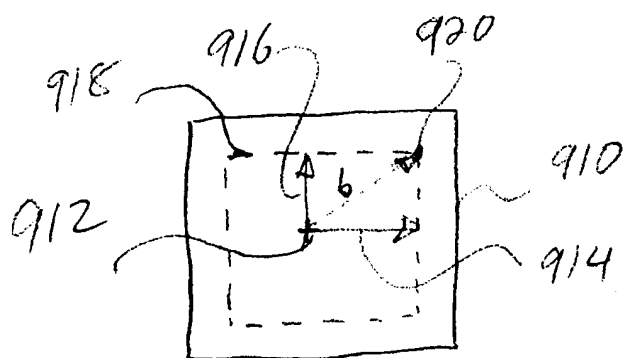
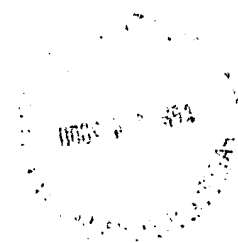


Fig 9B



004F40"89E64560